

STATE OF TENNESSEE **DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763

N00004410 Lab ID: Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

N00004410001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

04/20/2009 09:20 BRANDY LONG

Sampler's Name: County:

ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency:

TDEC-DWS 327.39-12

Billing Code: Send Report To:

TDEC-DWS

Agency Invoiced: Priority Date:

Date/Time Received: 04

04/20/2009 11:30

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

| TEST: Alkalinity, Total | ME | THOD: EPA 31 | 0.2 | | | |
|-------------------------|-----|--------------|-------------------|----|--------|-----------|
| ANALYTE | MDL | MQL | ANALYZED BY: DATE | | | |
| Total Alkalinity | 58 | mg/L | 3.8 | 10 | M Chen | 4/21/2009 |

| TEST: Hardness, Calcium | WE. | THOD: SM 350 | 0-Ca D | | | |
|-------------------------|--------|--------------|--------|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Calcium hardness | 41 | mg/L | 0.7 | 1 | M Chen | 4/20/2009 |

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004410002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

04/20/2009 09:25

Sampler's Name:

BRANDY LONG

County: Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced: TDEC-DWS
TDEC-DWS

Priority Date:

Date/Time Received:

04/20/2009

11:30

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

| TEST: Alkalinity, Total | ME | THOD: EPA 31 | 0.2 | | | |
|-------------------------|--------|--------------|-----|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Total Alkalinity | 55 | mg/L | 3.8 | 10 | M Chen | 4/21/2009 |

| TEST: Hardness, Calcium | ME. | THOD: SM 350 | 0-Ca D | | | |
|-------------------------|--------|--------------|--------|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Calcium hardness | 41 | mg/L | 0.7 | 1 | M Chen | 4/20/2009 |

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004410003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

04/20/2009 09:50

Sampler's Name:

BRANDY LONG

County: **Sample Matrix:** **ROANE - 73**

EFO:

Water

Sampling Agency:

Knoxville **TDEC-DWS**

Billing Code: Send Report To: 327.39-12 **TDEC-DWS**

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

TEST: Alkalinity, Total

04/20/2009

11:30

Received By:

L Barrociere

METHOD: EPA 310.2

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

:Hq

Other:

Flow:

MDL MQL **ANALYZED BY: ANALYTE RESULT** UNITS DATE

76 mg/L 3.8 10 M Chen **Total Alkalinity** 4/21/2009

TEST: Hardness, Calcium METHOD: SM 3500-Ca D

| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
|------------------|--------|-------|-----|-----|--------------|-----------|
| Calcium hardness | 52 | mg/L | 0.7 | 1 | M Chen | 4/20/2009 |

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004410004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

04/20/2009 09:55

Sampler's Name:

BRANDY LONG

County: **Sample Matrix:** **ROANE - 73** Water

EFO: Sampling Agency: Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To: **Agency Invoiced:**

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

04/20/2009

11:30

RESULT

65

ANALYTE

Total Alkalinity

I Parraciara

| Received By: | L Barrociere | | |
|----------------------|--------------|---------------------------------------|--|
| • | | | |
| | | · · · · · · · · · · · · · · · · · · · | |
| TEST: Alkalinity, To | tal | METHOD: EPA 310.2 | |

UNITS

mg/L

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

MQL

10

ANALYZED BY:

M Chen

CFS

DATE

4/21/2009

Conductivity:

Temperature:

pH:

Other:

Flow:

MDL

3.8

| TEST: Hardness, Calcium | ME | THOD: SM 350 | 0-Ca D | | | |
|-------------------------|--------|--------------|--------|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Calcium hardness | 56 | mg/L | 0.7 | 1 | M Chen | 4/20/2009 |

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



STATE OF TENNESSEE **DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES**

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TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein TDEC-DWS

200 East Race St Knoxville, TN 37763 Lab ID: N00004410 Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

N00004410001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

04/20/2009 09:20 **BRANDY LONG**

Sampler's Name: County:

Sample Matrix:

ROANE - 73 Water

EFO: Sampling Agency: Knoxville TDEC-DWS

Billing Code: Send Report To: Agency Invoiced:

Date/Time Received:

327.39-12 TDEC-DWS TDEC-DWS

Priority Date:

04/20/2009 11:30

Received By:

L Barrociere

TEST: Digestion Metals METHOD: EPA 200.2 MDL MQL **ANALYZED BY:** DATE ANALYTE RESULT UNITS S Ufegbu 4/21/2009 04/21/2009 **Digestion Metals**

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

:Ha

Other: Flow:

| TEST: ICP-MS | MET | THOD: EPA 200 | 0.8 | .8 | | | |
|--------------|--------|---------------|------|-----|--------------|-----------|--|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE | |
| Arsenic | U | μg/L | 0.93 | 5 | M Pattanayek | 4/21/2009 | |
| Barium | 24 | μg/L | 2.5 | 5 | M Pattanayek | 4/21/2009 | |
| Beryllium | 0.35J | μg/L | 0.11 | 1 | M Pattanayek | 4/21/2009 | |
| Cadmium | U | μg/L | 0.41 | 1 | M Pattanayek | 4/21/2009 | |
| Chromium | U | μg/L | 2.0 | 5 | M Pattanayek | 4/21/2009 | |
| Cobalt | 0.51J | μg/L | 0.04 | 1 | M Pattanayek | 4/21/2009 | |
| Lead | 0.92J | μg/L | 0.10 | 1 | M Pattanayek | 4/21/2009 | |
| Manganese | 60 | μg/L | 0.42 | 1 | M Pattanayek | 4/21/2009 | |
| Selenium | U | μg/L | 1.3 | 5 | M Pattanayek | 4/21/2009 | |
| Thallium | 0.63J | μg/L | 0.03 | 1 | M Pattanayek | 4/21/2009 | |
| Vanadium | U | μg/L | 3.4 | 5 | M Pattanayek | 4/21/2009 | |

| TEST: Mercury | ME | THOD: EPA 24 | 5.1 | | | | |
|---------------|--------|--------------|-------|-----|-------------------|-----------|--|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: DATE | | |
| Mercury | U | μg/L | 0.029 | 0.2 | A Wilson | 4/21/2009 | |

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004410002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.: Station No.:

Date/Time Collected:

04/20/2009 09:25 **BRANDY LONG**

Sampler's Name: County:

ROANE - 73

Sample Matrix:

Water

EFO: **Sampling Agency:** Knoxville TDEC-DWS

Billing Code: Send Report To: Agency Invoiced: 327.39-12 **TDEC-DWS** TDEC-DWS

Priority Date:

Date/Time Received:

04/20/2009 11:30

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other:

Flow:

CFS

| TEST: Digestion Metals | MET | THOD: EPA 20 | 0.2 | | | |
|------------------------|------------|--------------|-----|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Digestion Metals | 04/21/2009 | | | | S Ufegbu | 4/21/2009 |

| TEST: ICP-MS | ME ⁻ | METHOD: EPA 200.8 | | | | |
|--------------|-----------------|-------------------|------|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Arsenic | U | μg/L | 0.93 | 5 | M Pattanayek | 4/21/2009 |
| Barium | 24 | µg/L | 2.5 | 5 | M Pattanayek | 4/21/2009 |
| Beryllium | U | μg/L | 0.11 | 1 | M Pattanayek | 4/21/2009 |
| Cadmium | U | μg/L | 0.41 | 1 | M Pattanayek | 4/21/2009 |
| Chromium | U | μg/L | 2.0 | 5 | M Pattanayek | 4/21/2009 |
| Cobalt | 0.08J | μg/L | 0.04 | 1 | M Pattanayek | 4/21/2009 |
| Lead | 0.12J | μg/L | 0.10 | 1 | M Pattanayek | 4/21/2009 |
| Manganese | 0.57J | μg/L | 0.42 | 1 | M Pattanayek | 4/21/2009 |
| Selenium | U | μg/L | 1.3 | 5 | M Pattanayek | 4/21/2009 |
| Thallium | 0.08J | μg/L | 0.03 | 1 | M Pattanayek | 4/21/2009 |
| Vanadium | U | μg/L | 3.4 | 5 | M Pattanayek | 4/21/2009 |

| TEST: Mercury METHOD: EPA 245.1 | | | | | | |
|---------------------------------|--------|-------|-------|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Mercury | U | μg/L | 0.029 | 0.2 | A Wilson | 4/21/2009 |

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004410003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

Sampler's Name:

04/20/2009 09:50 **BRANDY LONG**

County: Sample Matrix: ROANE - 73

EFO: Sampling Agency: Water Knoxville TDEC-DWS

Billing Code: Send Report To: Agency Invoiced:

327.39-12 TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

04/20/2009 11:30

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

| TEST: Digestion Metals | ME | METHOD: EPA 200.2 | | | | |
|------------------------|------------|-------------------|-----|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Digestion Metals | 04/21/2009 | | | | S Ufegbu | 4/21/2009 |

| TEST: ICP-MS | METHOD: EPA 200.8 | | | | | |
|--------------|-------------------|-------|------|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Arsenic | Ų | μg/L | 0.93 | 5 | M Pattanayek | 4/21/2009 |
| Barium | 30 | μg/L | 2.5 | 5 | M Pattanayek | 4/21/2009 |
| Beryllium | U | μg/L | 0.11 | 1 | M Pattanayek | 4/21/2009 |
| Cadmium | U | μg/L | 0.41 | 1 | M Pattanayek | 4/21/2009 |
| Chromium | U | μg/L | 2.0 | 5 | M Pattanayek | 4/21/2009 |
| Cobalt | 0.14J | μg/L | 0.04 | 1 | M Pattanayek | 4/21/2009 |
| Lead | 0.41J | μg/L | 0.10 | 1 | M Pattanayek | 4/21/2009 |
| Manganese | 26 | μg/L | 0.42 | 1 | M Pattanayek | 4/21/2009 |
| Selenium | U | μg/L | 1.3 | 5 | M Pattanayek | 4/21/2009 |
| Thallium | 0.03J | μg/L | 0.03 | 1 | M Pattanayek | 4/21/2009 |
| Vanadium | U | μg/L | 3.4 | 5 | M Pattanayek | 4/21/2009 |

| TEST: Mercury | METHOD: EPA 245.1 | | | | | |
|---------------|-------------------|-------|-------|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Mercury | U | μg/L | 0.029 | 0.2 | A Wilson | 4/21/2009 |

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004410004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected: 04/20/2009 09:55
Sampler's Name: BRANDY LONG
County: ROANE - 73

County: ROANE - 73
Sample Matrix: Water
EFO: Knoxville
Sampling Agency: TDEC-DWS
Billing Code: 327.39-12
Send Report To: TDEC-DWS
Agency Invoiced: TDEC-DWS

Priority Date:

Date/Time Received: 04/20/2009 11:30

Received By: L Barrociere

Field Determinations

pH:

Chlorine, residual:
Conductivity:
Temperature:
Dissolved Oxygen:

Other: Flow:

CFS

| TEST: Digestion Metals | METHOD: EPA 200.2 | | | | | |
|------------------------|-------------------|-------|-----|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Digestion Metals | 04/21/2009 | | | | S Ufegbu | 4/21/2009 |

| TEST: ICP-MS | METHOD: EPA 200.8 | | | | | |
|--------------|-------------------|-------|------|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Arsenic | U | μg/L | 0.93 | 5 | M Pattanayek | 4/21/2009 |
| Barium | 25 | μg/L | 2.5 | 5 | M Pattanayek | 4/21/2009 |
| Beryllium | U | μg/L | 0.11 | 1 | M Pattanayek | 4/21/2009 |
| Cadmium | U | μg/L | 0.41 | 1 | M Pattanayek | 4/21/2009 |
| Chromium | U | μg/L | 2.0 | 5 | M Pattanayek | 4/21/2009 |
| Cobalt | 0.06J | μg/L | 0.04 | 1 | M Pattanayek | 4/21/2009 |
| Lead | U | μg/L | 0.10 | 1 | M Pattanayek | 4/21/2009 |
| Manganese | 0.91J | μg/L | 0.42 | 1 | M Pattanayek | 4/21/2009 |
| Selenium | U | μg/L | 1.3 | 5 | M Pattanayek | 4/21/2009 |
| Thallium | U | μg/L | 0.03 | 1 | M Pattanayek | 4/21/2009 |
| Vanadium | U | μg/L | 3.4 | 5 | M Pattanayek | 4/21/2009 |

| TEST: Mercury | ercury METHOD: EPA 245.1 | | | | | |
|---------------|--------------------------|-------|-------|-----|--------------|-----------|
| ANALYTE | RESULT | UNITS | MDL | MQL | ANALYZED BY: | DATE |
| Mercury | 0.029J | μg/L | 0.029 | 0.2 | A Wilson | 4/21/2009 |

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit